JOURNAL

OF AMERICAN INSURANCE

FEBRUARY, 1961 Vol. 37, No. 2

A New Marvel in Communications

These Old Fires Never Go Out

Business Takes to the Airways

Checkup on Our Health Care

Show Windows of World Trade

Better Schooling From the Sky

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FRONT COVER — *Five of the Franklin Stamps*

BACK COVER — *Horace Greeley Stamp, February '61*

OUR COVERS

ANOTHER MONTH and it will be 114 years since the issuance of stamps by the Postmaster General was authorized on March 3, 1847, although President Washington signed the first act authorizing rates on February 20, 1792. Today about 25 billion stamps a year are used in the U.S.

Appearing more often on those stamps than any other man is Benjamin Franklin, "founding father of the American postal system," as well as the leading progenitor of U. S. insurance through his role in establishment of mutual fire insurance.

Five of many Franklin stamps issued during the past 114 years are shown on our front cover, starting with the 5-cent one in the series of 1847. It and the 10-cent Washington stamp were the only two in that series.

The newest U. S. commemorative stamp, issued this month in tribute to Horace Greeley (back cover), born February 3, 1811, is linked indirectly with mutual insurance. Greeley's "Go West, young man, go West," keynoting the great westward trek during the latter half of the 1800's, was also a prelude to a dynamic era of mutual insurance progress in the midwest.

Mutual property and casualty companies, now numbering 2,420, had assets of $5.8 billion in 1959, paid losses of $1.5 billion, had a policyholders' surplus of $2 billion, paid dividends of $269 million.

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NEW WIZARDRY in fast paper work

Network of robots, magicians with data, makes history for insurance and communications.

This tip of a tape represents the ultimate in the compression and fast transmission of voluminous data. On it are details from many pages of insurance records now done by Data-Phone.

THIS IS the next thing to the impossible. Machines that talk to each other from many scattered points across the country are now clacking away in the largest communications network of its kind.

True, the impossible is still inviolable. There are not and never will be thinking machines that can be substituted for the human mind. But the machines in this new system perform wonders without thinking. Connections are put through as ordinary telephone calls. Then with a flip of a switch, complex data or text in any machine language, including handwriting and diagrams, is transmitted cross-country from one machine to another at speeds up to the equivalent of 1,600 words a minute.

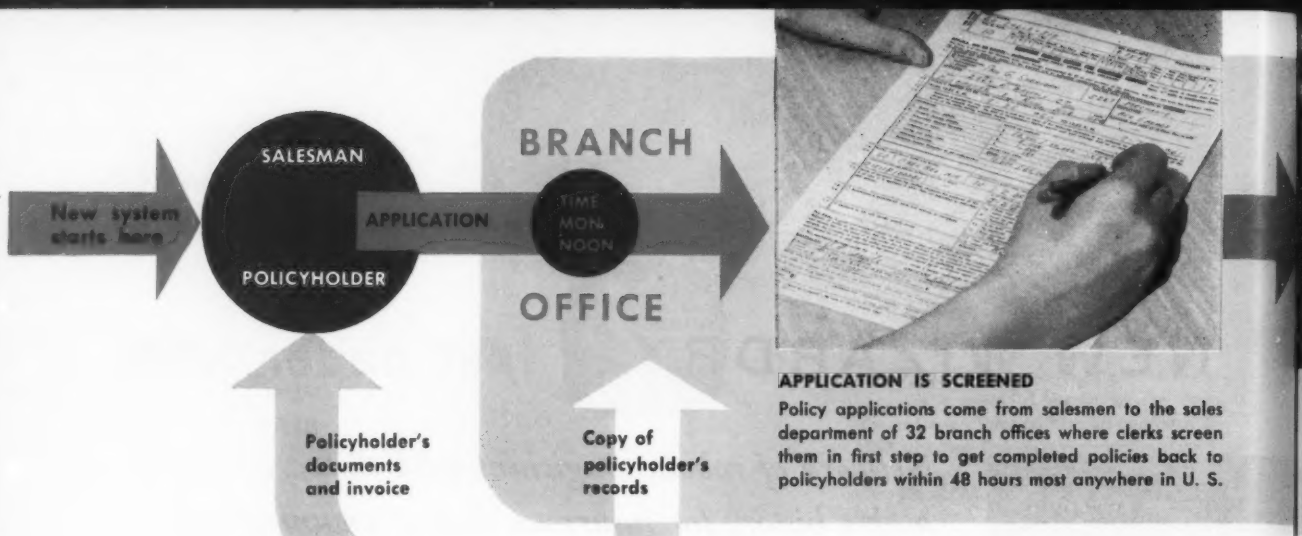
In communications annals, this is a milestone ranking with the first transcontinental telephone call, January 25, 1915. On that occasion Alexander Graham Bell, inventor of the telephone, spoke from New York to Thomas A. Watson in San Francisco, repeating the historic words "Watson, come here; I want you." This was the first complete sentence which Watson, then Bell's laboratory assistant, had heard the inventor communicate to him, March 10, 1876, when Bell achieved voice transmission with his apparatus.

The new communications system has just been completed for the Hardware Mutuals-Sentry Life insurance group of Stevens Point, Wisconsin, utilizing the Bell Telephone System's Data-Phone method of transmission over the regular telephone network. Building a comparable communications network for data transmission would take more than 20 years and cost billions of dollars, if the network that now carries voice communication were not available.

Tremendous savings in paper work costs will be made by Hardware Mutuals-Sentry Life through their advanced electronic data transmitting and processing methods, it was estimated by James P. Jacobs, president. Such operating savings are passed on to mutual company policyholders in the form of dividends, resulting in reduced premium costs.

Many other mutual insurance companies are equally concerned with making operating savings through data processing that may be passed on to policyholders through dividends.

Policyholders also will benefit through improved personal service and personal contact. The electronic computer will produce every form of policy record and notice from a single punched card source, thus reducing the margin for manual copying errors. Every insurance policy record will be brought up to date every 24 hours. Address changes, car changes, coverage changes and latest premium payments will be reflected immediately in renewal notices, premium collection notices and other communications, minimizing opportunities for misunderstanding between the insurance companies and



APPLICATION IS SCREENED

Policy applications come from salesmen to the sales department of 32 branch offices where clerks screen them in first step to get completed policies back to policyholders within 48 hours most anywhere in U. S.

New Wizardry in Fast Paper Work

their policyholders. Branch offices also will have more complete information readily accessible than ever before.

Reminiscent of the fact that the first patent for the telephone in 1876 was issued within the memory of some still living, here are some believe-it-or-not feats possible with the new communications network:

Time normally required in insurance circles to provide complete customer service will be cut considerably.

Complete daily operating statements for Hardware Mutual Casualty Company, Hardware Dealers Mutual Fire Insurance Company and Sentry Life Insurance Company can be produced in 17 minutes by the new data processing center.

Punched cards containing all the information needed to rate, calculate and print a private personal auto insurance policy can be transmitted in 30 seconds.

An address change, a change in policy coverage or information on a new car purchase requiring a correction in an auto insurance policy can be transmitted in six seconds.

The IBM 7070 can read all data on 4,150 insurance policies from magnetic tape in just 60 seconds. Punched cards can be read at the rate of 800 per minute, yielding enough data to rate, calculate and print 160 insurance policies —and the data can be converted to magnetic tape in one minute.

FILES SHRINK

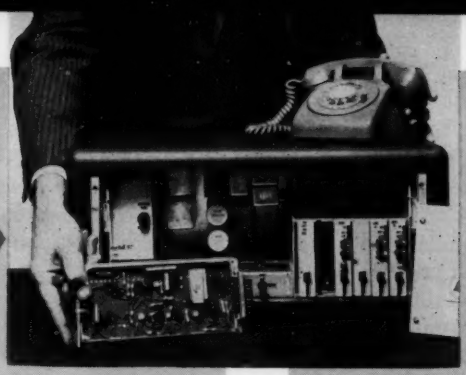
Five magnetic tape reels held by clerk at left store records equivalent to 32 sections of open policy storage files at the right. Computer searches through magnetic tape files daily, doing vast amount of once laborious paper work on renewals, changes, premiums and many other details.

DOCUMENTS SPEEDILY PRODUCED

Computer punch-card data is readily transferred to a policy declaration (operator's right hand) by a high-speed printer. Electronic brain also produces punch-card invoice, salesman's record and other documents.

DATA GOES ON PUNCH CARD

Once screened, policy applications go to key punch operators who transfer data to punch cards, ready for verification and transmission by Data-Phone over the regular telephone lines to Stevens Point, Wisconsin.



"TALKING" MACHINES TAKE OVER

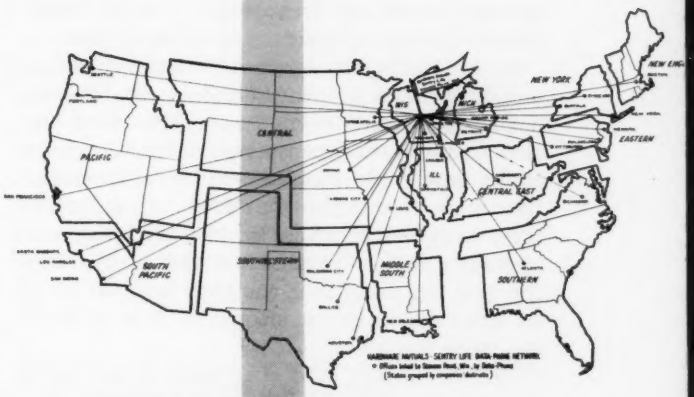
Punch-card data is transmitted instantly by means of Data-Phone sets. A phone call is placed, then one set as shown here "talks" business-machine signals to the connected set, relaying data, handwriting, diagrams.

Printing 600 lines of data per minute, the IBM 1401 computer can produce 50 auto insurance declarations per minute. The declaration is the first page containing information on the policyholder, his car, his rates and premiums.

The IBM Transreceiver will transmit 10 80-column punched cards or 15 40-column punched cards per minute.

Even with the shifting from hand methods to electronic automation, there will be no personnel layoffs, President Jacobs said. "New jobs created by expanding business, and normal clerical personnel turnover, exceed the actual rate of technological displacement by the data processing system."

In reaching this historic milestone in data transmission, mutual insurance and telephone



SYSTEM SPANS NATION

All 32 branch-office cities are now linked with the companies' $370,000 data processing headquarters in an epochal advance for insurance and communications.

TA

PROCESSING CENTER

ALL RECORDS UPDATED DAILY

From incoming sorted cards, each day's flow of new applications, changes, premium receipts and claims payments are fed into computer (center); all information is filed on magnetic tapes in nearby storage.

HOME OFFICE RECEIVES DATA

At Stevens Point a Data-Phone (left) converts "talk" from any branch set to electrical pulses whereby IBM Transceiver (right) can duplicate 10 punch cards per minute of policy applications from branch offices.

communication have made history side by side. Mutual insurance was already 124 years old and well established in the U. S. when the first telephone patent was granted in 1876. The two enterprises progressed to the Midwest about the same time. But telephone service was still in the embryonic stage and New York to Chicago communication was only 21 years old when Hardware Dealers Mutual Insurance Company was formed at Berlin, Wisconsin, in April, 1904. This is the oldest of the three companies in the group. It was formed by hardware men who had been paying excessively high premiums for fire insurance because they stored paint, linseed oil and turpentine in their stores.

P. J. Jacobs, a hardware dealer, became secretary-treasurer in 1912 and moved company headquarters to Stevens Point. Hardware Mutual Casualty Company, now largest member of the group, was organized in 1913. Sentry Life Insurance Company, chartered in November, 1958, began operations in 1960 in Wisconsin, Michigan, Ohio, Indiana and Kentucky. It is the first life insurance company to plan all of its operations around electronic data processing from the start.

Carl N. Jacobs, now chairman of the board for the three companies, began pioneering office automation and decentralization in 1930 "to get operations close to the policyholder." Today more than four-fifths of the companies' 3,750 employees service more than $100 million in casualty and fire insurance premiums. The companies expect to more than double their present premium volume in the next 10 years.

System Is Largest of Its Kind in Nation

In the new communications system, the insurance companies will utilize a total of 36 Data-Phone sets, making it the largest such installation in the country serving business. Four sets are installed at the companies' Stevens Point data processing center, connecting with 32 installations in the companies' major offices across the country.

First produced by punch card methods in Hardware Mutuals' automation program have been private personal auto insurance policies. As computer capacity and the Data-Phone network expand, insurance for outboard motorboats, comprehensive personal liability, private personal fire and homeowners will be added to the automatic production schedule.

Commercial insurance lines, such as group accident and health, public liability, workmen's compensation, burglary, inland marine, plate glass, fire, and fleet automobile will still require individual underwriting attention. But ultimately a substantial share of the paper work on these complex business insurance lines will be handled on punch card, computer and Data-Phone systems. Here again, automation will contribute to low net costs and higher dividends to businessmen.

Installation of the new communications system is the culmination of a gradual electronic automation of paper work operations which began more than five years ago at the companies. Along with insurance policy details, the companies' general payroll, and sales payroll and commissions have gradually been transferred to machine methods.

Wondrous Feats Envisioned for Data-Phone

While the Hardware Mutuals' installation is the largest integrated use of Data-Phone to date by business, there are about 1,000 Bell System Data-Phone sets in operation across the country. By the end of 1961 officials of the American Telephone and Telegraph Company expect to have 10,000 Data-Phone sets in operation and up to 200,000 sets functioning by 1965.

These sets will never be able to think, but AT&T officials envision them eventually doing fantastic things. Almost unbelievable new developments are seen as possible through teaming the Data-Phone with a card reader device developed by the Western Electric Company. Salesmen returning from a business trip may be able to submit their orders direct to the factory. Housewives may be able to shop conveniently and selectively at automated supermarkets without ever leaving their homes. One day bills may be paid by Data-Phone, and readings may be made of gas, electric and water meters by remote control. Home appliances may even be activated by remote control. In that Utopian era no vacationer will be distraught for having forgotten to turn off the home gas heater or other appliances. A call from the nearest telephone will tell the appliance to stop working, and the forgetful vacationer can relax. Already, with its switch to electronic data processing and transmission, the insurance industry is providing faster-action, peace-of-mind protection. ⊙

FIERY INFERNOS UNDER OUR FEET

Slow-burning coal-deposit fires have been claiming lives and property for nearly two centuries.

FOR 76 YEARS now the good people of New Straitsville, Ohio, have been shouting "Fire." Their problem, aside from their growing somewhat hoarse, is that it's the same fire—and it's still burning.

Many other communities can sympathize with New Straitsville, for numerous such fires have been reported burning in inactive coal deposits throughout the country, according to the United States Bureau of Mines. Some have been investigated and put under control. Others are burning freely.

New Straitsville's troubles started in 1884 when an abandoned coal mine was somehow ignited. It has been smoldering below the surface ever since, destroying property and consuming an estimated $1 million worth of coal reserves each year.

The Works Progress Administration put 300 men to work in 1936 to quench the smoking coal, which at that time had already caused some $50 million in damages. Laboriously digging out six-foot coal seams and filling them with a fire-impervious clay to form incombustible barriers, the workers then sealed mine entrances to cut off the supply of oxygen. The engineer in charge of the six-month, million-dollar project then announced that the fire had been "whipped."

That was 24 years ago, but the obnoxious fires and their haze of sulphur still surround New Straitsville. Two major projects since that time have been equally unsuccessful.

How did this fire start? Residents of the area enjoy relating two colorful, but unsubstantiated tales. One is that irate miners, after a hassle with a mine owner, filled a mine car with trash, put a torch to it and sent it careening into the slope mine. Another story is that

Workers shoot a steady stream of water into this smoking abandoned mine shaft prior to "loading out" burning coal. Drowning is not effective stopper on long-burning fires.

U. S. Department of the Interior Bureau of Mines Photos

moonshiners used the abandoned mines to conceal their illegal operations. Exploding moonshine stills, the legend goes, not only destroyed thousands of gallons of first-class corn liquor, but started the mine fires as well.

Most prominent in the coal regions of Ohio, Pennsylvania, Maryland and West Virginia, abandoned-mine fires have claimed lives, destroyed homes and posed a potential danger to the lives and health of many persons.

A young girl in West Mifflin Borough, Pennsylvania, was consumed by an underground mine fire when she fell into a surface crevice. In O'Hara Township, Pennsylvania, a boy riding his horse narrowly escaped death when the ground below him collapsed. His horse, however, was killed.

Several persons in eastern Pennsylvania have reportedly died from breathing mine-fire gases that entered their homes through crevices. Members of an East Pittsburgh family were overcome by the deadly fumes from a nearby underground fire. The husband, upon returning home from work, found his wife and children unconscious. Fortunately, he was in time to revive them.

Homes along the paths of these fires have been destroyed, either by fire or ground collapse. In Ohio, not far from New Straitsville, a new consolidated school was threatened by a creeping underground fire until a deep, concrete barrier was placed around the school. The fire circled the school, leaving it unharmed, but continued on to cause the collapse of a nearby highway.

Insurance agents working in these areas are thoroughly indoctrinated in the practice of underwriting with caution. Property insurance rates are not excessive, but indications of approaching mine fires have caused many policy cancellations. Insurance companies, along with the Bureau of Mines and state and local governments, have been active in attempting to control the fires. Until recently, however, most efforts have failed. Various ways have been tried to drown the fires, dig them out, quarantine them, all with little success.

Largest of the burning coal beds is the Pittsburgh bed, which underlies southwestern Pennsylvania, east central West Virginia, eastern Ohio and western Maryland. The bed is about six feet thick and has two or more rider coal beds directly above the main bed. As early as 1776 fires were reported burning in this giant bed.

Although abandoned-mine fires are widespread and destructive, they move at a leisurely pace, owing to their deficiency of oxygen. As the fires burn underground from outcrops, heat expands the overlying strata and breaks it to the surface. These breaks are called stacks or chimneys through which the hot gases escape and air is drawn into the fire zones.

In 1948 Congress recognized the need for control measures and passed legislation which appropriated money to battle fires in inactive and abandoned mines on public domain and on private property. State, county and local governmental agencies have also assisted financially.

Total cost for extinguishing mine fires on public domain, primarily in the western states, is paid by the federal government. Fires in the eastern coal regions, however, are more often

Flushing finely divided incombustible material through boreholes into a burning mine near Carbondale, Pennsylvania, is more recent practice used in controlling underground fires.

Seal constructed in an active mine will prevent any air from reaching fire area in an inactive mine and also prevents injurious gases caused by fire from entering the active mine.

Not the geysers of Yellowstone National Park, but the mine fires of Westmoreland County, Pennsylvania. Steam escapes from uncapped boreholes as fire nears town of Lloydsville.

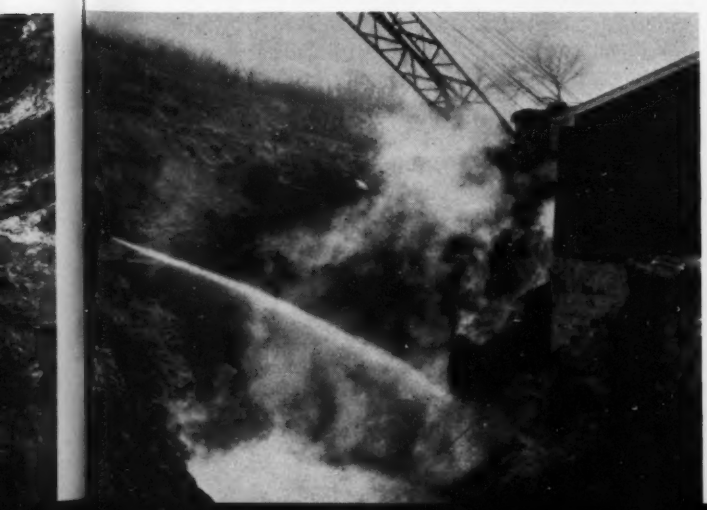
on private land. In these instances, to rate federal assistance, the fires must be in coal deposits in inactive mines. If such is the case, the federal government will pay up to 50 per cent of the cost of controlling the fire.

What makes abandoned-mine fires difficult to combat is that they often go unnoticed for many years, enabling them to get a good start. They also are usually far below the surface and difficult to reach. The quicker control measures are put into effect, the better chance the fires can be halted.

Most recent deterrent which has met with success is high-expansion foam. Tested in the Federal Bureau of Mines' experimental coal mine near Pittsburgh, foams have brought fires under control so that direct assaults with water or other extinguishing agents were possible. The effectiveness of foam in controlling deep-seated fires has not yet been proved in actual coal beds.

Formed by spraying a diluted solution of foaming compound through a metal or cotton mesh, foams have thus far been successful in extinguishing 13 of 16 experimental fires. Air passing through the mesh produces bubbles which create a mass of foam, filling all passageways open to air movement. Expansion ratio of the foam (ratio of foam to solution volume) is about 500 to 1. More recent experiments show that use of a power atomizer creates a 1,500 to 1 ratio.

Last-minute battle to rescue homes being threatened by burning coal bed is made near Monroeville, Pennsylvania. Trench is being dug to make way for an incombustible fire barrier.



Although some mine fires are centuries old, there are others which have been started only recently. Main causes of the fires today are recklessly placed trash fires which come in contact with surface exposures of coal beds, and bacterial and chemical action.

With continued research by the Bureau of Mines, the time may yet come when the sulphur clouds will disappear from the horizon. New Straitsville, as well as many other localities, won't be the same—but no one will complain. ⊙

BARNSTORMING FOR BUSINESS

U. S. firms go airborne in search of customers, profits and efficiency.

Nekoosa-Edwards invites customers to visit the firm's paper mill in Wisconsin, transports them in a twin-engine Beechcraft Super 18. Employers Mutuals insures both the plane and the company's aviation liability.

→ A tornado, flood, hurricane or other major disaster sends insurance adjusters flying into the area to pay claims. This mutual insurance company is one of about 10,000 American firms that now fly business airplanes.

Aeronautical Consultants and Associates

Some insurers make periodic inspections of company aircraft, help train pilots in emergency procedures. Here, Liberty Mutual's team of special consultants check out an F-27, a $590,000 plane. They will also evaluate its maintenance and the pilot's proficiency.

ABOUT THREE TIMES a month, workers at the Amerock Corporation shut down their machines, pull out the dies and hot molds, and quickly bundle them onto a truck headed for the airport at Rockford, Illinois.

Pilot Peter Borgia stows them aboard a twin-engine Aero Commander, hops over to Milwaukee to clear U. S. Customs before heading north for the Canadian border. By 1:30 that afternoon the dies and still-hot molds are turning out appliance parts and hardware items for Amerock, Limited, a subsidiary located 125 miles northeast of Toronto. Borgia flies back the same day with other dies pulled off the Canadian plant's machines—a switch that enables Amerock to run two plants with one set of expensive dies, and to assure U. S. manufacturers operating in Canada that they are getting identical parts for appliances assembled in both countries.

This ingenious airlift illustrates a growing trend: American businessmen now fly 31,500

→
disaster
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airplanes, more than the military services and the airlines combined. An estimated 10,000 U. S. firms either operate company aircraft or have employees who use their own planes on company business, from selling insurance to patroling pipelines. Business trips account for about 45 per cent of all the hours flown in utility aircraft, while pleasure flying has dropped to only 19 per cent of the total.

California leads the nation in the number of civil aircraft, followed by Texas, Illinois, New York, Ohio, Michigan, Pennsylvania and Florida. The vast majority of these planes are one- and two-engine aircraft, with the trend running toward the latter among corporate users.

Although some companies have been flying their own aircraft since barnstorming days, the real boom in business aviation started about 15 years ago. Wartime travel had introduced large numbers of businessmen to the advantages of flying, and the end of World War II made available a plentiful supply of trained pilots and a large number of suitable planes at attractive prices. The postwar trend toward decentralized plants also made fast, flexible transportation a necessity for company executives, engineers, buyers and sales managers.

Allied Stores Corporation's experience is typical. The firm acquired a DC-3 in 1946 as a timesaving convenience for its top executives and has since added a lighter twin-engine plane for use in its Pacific Northwest operations. Both are used chiefly for inspection tours of the corporation's 86 stores, located in 24 states. Management officials sometimes make reconnaissance flights and aerial photos to aid in locating new stores and shopping centers.

Small and medium-sized businesses also have found new uses for business flying, some of them offbeat. A Florida realtor uses his plane to survey farms and other real estate. In Wichita, the Eagle Publishing Company and radio

Tufts-Edgcumbe, Incorporated

Piper Aircraft Corporation, which traditionally has concentrated on small, single-engine planes, reports rising demands for executive transports like this 220-horsepower Apache G.

A. E. Staley Manufacturing Company, Decatur, Illinois, speeds up travel in the corn, soybean and chemical processing business with popular DC-3, insured by Lumbermens Mutual.

Barnstorming for Business

station KFH cover news stories in their single-engine plane. The Jack Anderson Company of Kilgore, Texas, makes emergency deliveries of oil field equipment and mechanics' service calls by air, and the Church of God Prophecy of Cleveland, Tennessee, uses its fleet of 35 small planes to drop religious leaflets and handbills announcing revival meetings.

At De Jong and Associates, an Illinois firm of civil engineering consultants, the company plane easily doubles the amount of work the company's 14-man staff can handle. The firm specializes in work for municipalities, and tries to keep at least 30 jobs in progress at once during the construction season. As Ed De Jong put it, "That means 30 municipalities, and that's a lot of travel."

De Jong decided to try business flying in 1956, starting out with a chartered plane to see whether it would work out. Now four of the firm's engineers have pilot's licenses, often find that flying shortens a three-day auto trip to one day. In addition to transporting staff members to their jobs, De Jong uses the plane for taking prospects to see completed jobs—a most effective form of salesmanship.

Insurance companies also are using company planes to serve their policyholders and as a competitive tool. Hardware Mutuals of Stevens Point, Wisconsin, have recently acquired a twin-engine Beechcraft, plan to use the plane for flying adjusters and other service people into disaster areas to assure policyholders of prompt payment of claims. In addition, the plane will enable home office specialists to sell and service large group accounts, even in cities not served by the airlines.

Like virtually all other companies that own airplanes, Hardware Mutuals carry high-limit insurance policies to cover mishaps involving the plane, its occupants and the public. The plane itself is insured for $220,000 against physical damage, and the hangar for $50,000. However, this is only a drop in the bucket compared with the liability coverages—$3 million in primary coverage against property damage and bodily injuries, carried with Employers' Mutuals, plus an additional $9 million in excess liability coverages underwritten by Lloyds. Passengers also are covered by a special policy providing up to $10,000 per person in medical payments in the event of injuries suffered in a crash.

These limits are about average, judging from a survey of corporate aircraft practices conducted by the National Industrial Conference Board. Among companies reporting their maximum liability coverages on aircraft, the most frequently mentioned amount was $10 million. None felt safe with less than $1 million in liability insurance, and some corporations went as high as $18 million.

National Aero Sales Corporation

Small companies, ranchers and farmers often prefer single-engine planes for their modest cost, operating efficiency. This Cessna Skyhawk is one of several for less than $10,000.

Aero Commander 500A, another popular company plane, cruises at 217 mph and lists for about $75,000. Typical hull, liability and medical insurance coverage might cost $2,700 a year.

A relatively new type of aviation insurance coverage now carried by a majority of corporate owners is called "passenger admitted liability" or "guest voluntary settlement" insurance. It provides for a fixed payment (usually $25,000 to $50,000) for death or serious injury to passengers, regardless of the firm's legal liability for the mishap. Under this policy, the payment is made only if the claimant agrees not to sue the company for an additional amount; otherwise the firm's regular liability insurance applies. The insurance is provided to cover the company's moral obligation, not its legal liabilities.

Despite the staggering amounts involved in all these insurance coverages, premiums usually run only three to seven per cent of the operating costs of a company airplane. A complete insurance program for a two-seater, 95-horsepower Piper Cub worth $6,000 might run $400 a year. A $200,000 DC-3, seating 16, could cost $8,500 a year or more, and a $600,000 F-27 could run up a premium of $29,500 a year.

Other operating costs, including fuel, pilots' salaries, maintenance, hangar rent and depreciation make owning an airplane an expensive luxury unless the company keeps it busy earning its keep.

"A company airplane is a business tool—just as surely as an adding machine, a fork lift or a drill press is a business tool," says Editor William G. Osmun in the September, 1960, issue of *Business Commercial Aviation Magazine.* "Those who recognize this fact and build their operation around it stay in business flying. Those who don't are the prime targets of economy drives."

Keeping company planes flying, with safety, is a job that concerns insurers as well as owners. Some insurers offer their policyholders help in the form of safety engineering services and pilot training programs.

Liberty Mutual, for example, employs special aviation consultant Harley Kysor to fly with company pilots periodically as they practice emergency flight procedures. Along with Liberty's other Aviation Bureau staffers, Kysor also checks out the policyholder's entire aviation program, starting with management's flying policies and ending with a nuts-and-bolts inspection of the airplane and its maintenance.

Kemper Insurance's aviation department publishes a quarterly newsletter, available to any interested person, containing useful suggestions on flying hazards and airplane maintenance. Recent issues have included articles on how to deal with passenger fright, how to prevent fuel system icing, how to avoid cold front squall lines and how to balance the plane.

Whether the company flies a single-engine puddle-jumper or a turbine-powered executive plane, insurance services and coverages are welcome passengers when top talent goes barnstorming for business. ⊙

ALERT AND READY FOR ANY DISASTER

Heading J&L's program, launched in 1951, is R. L. Wheland, industrial defense co-ordinator. The educational material keeps all 42,000 J&L employees prepared.

For industrial defense and survival, this J&L program is acclaimed as one of the nation's best.

IT HAS TAKEN MORE than 100 years from its earliest beginnings for Jones & Laughlin Steel Corporation to get where it is today. But within four minutes after an alarm is sounded, all operations in a major department will cease and the employees will be in their assigned shelters.

Such is the measure of the award-winning program which the corporation has developed for the survival of its more than 42,000 employees, the preservation of its records and the possible speedy return to production at its 40 plants located throughout the U. S. and Canada.

In the whole of American industry, the J&L industrial defense and survival program is second to none and comparable to the best, according to officials of the Office of Civil and Defense Mobilization. "Certificates of Appreciation" have been awarded to the corporation for its pioneering efforts and leadership in disaster preparedness and to Richard L. Wheland, J&L's industrial defense co-ordinator, for his outstanding contribution to nonmilitary defense.

"Because of the critical nature of your products, whatever is done to safeguard your plant concerns the whole United States and the entire world." That tribute sums up what the OCDM thinks of the J&L program.

No endorsement of the program could be heartier than that given by mutual insurance. In the property and casualty fields, the mutual industry is a multibillion dollar insurer of American industry. Furthermore, prevention of losses, to the end that protection may be provided at cost, is the basic tenet of mutual insurance.

J&L does not subscribe to the contention that countermeasures against attack or other emergency are simply impossible for reasons of cost or other considerations. "Representatives of industry, government, the military and private citizens cannot afford to take this 'indifference' attitude. We must concentrate upon the possible and then do something about it."

What J&L and its employees are doing to be prepared and ready for mobilization at instant notice in order to survive is shown in the accompanying illustrations. They highlight one of the most advanced industrial defense systems for the threefold purpose of: (1) protecting life and property in plants, (2) preserving the corporate structure and (3) promoting industrial survival with employees and the community.

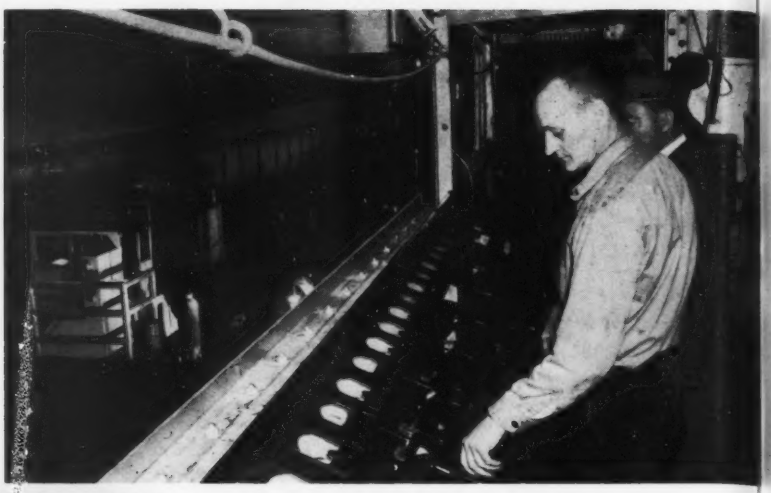
This underground vault near J&L's headquarters provides storage adequate for years in protecting all information needed for postattack resumption of production. Three employees are responsible for the vault material. Overall responsibility for the J&L program is held by the vice president of production. Each plant pursues its own program, with maintenance people handling details.

Vault-stored adjacent to the vital records are office facilities, standby stationery, other office supplies, cots and blankets. Provisions also have been made for emergency supplies of food and water. Personnel rosters of J&L employees are preserved with the vital records in that section of the vault, expandable when necessary.

To ensure against shutdowns regardless of the odds, J&L stresses training by means of frequent and regular meetings to prepare employees for various emergencies, including air raids, for which kits were distributed. Training (right) is given in first-aid measures for resuscitation, control of bleeding, care and transportation of the injured, burns, bandaging and splinting.

←Fire fighting, rescue and auxiliary policing, like first aid, are essential safeguards long taught in J&L's training programs and now adapted to the industrial defense program which earned the company OCDM citation.

This mobile pumping unit is but one example of facilities for a dependable water supply in the event of an emergency. One of J&L's own products, the "Jaliner," safely stores emergency supplies of drinking water. Each J&L home has about 40 gallons of water in various containers for disaster purposes.



This is the beginning of the four-minute shutdown at a J&L plant. The speed operator is shutting down the finishing stands of a 96-inch hot strip mill for a simulated air-raid exercise. Within four minutes after an alarm sounds in a major department, operations cease and employees are in their assigned air-raid shelters following a prearranged survival routine.

A surprise unannounced air-raid drill is held in some plants at least once every three months. J&L shelters are stocked with a full line of emergency first-aid supplies and lighting equipment (right). Also stored throughout J&L facilities for employees who may be in need of medical attention while in a raid shelter is a six-months stock of medical supplies.

← Most important of all phases in the J&L program is represented by this employee family studying personal survival. Literature is distributed regularly to keep home and community defenses ready. J&L considers this more than a service to employees. it also protects a valuable asset—the corps of J&L men and women who represent many years of company training, experience and loyalty and who will be sorely needed at their places in the plants during a postdisaster period.

FROM OUR ANNALS

Our U. S. Postal Service

ONLY ONE CITIZEN of record has ever said that he could do without the post office, for which President George Washington signed the first act establishing postal rates, on February 20, 1792. Later, Henry David Thoreau, the American author and philosopher (1817-1862), was to declaim, "I could easily do without the post office . . . I have never received more than one or two letters in my life . . . that were worth the postage."

Thoreau notwithstanding, the 180 million people in the U. S. today must adjudge the post office to be indispensable, for it is now being called upon to handle more than 61 billion pieces of mail a year. In major domestic mail alone, the rate per person is 335 pieces.

Twenty-five years hence authorities predict that the volume will exceed 700 pieces annually per capita in a population of 250 million people. If the post office is to maintain its reputation as the "keystone in the arch of American unity," such innovations as the missile mail feat of 1959 and the Turnkey automatic post office opened in 1960 at Providence, Rhode Island, are destined to be superseded by even swifter devices such as instantaneous facsimile transmission of letters and fully automated postal stations.

Even now the whole world is within the purview of the U. S. Post Office Department through the Universal Postal Union and the Postal Union of the Americas and Spain. But it was the overland Pony Express, 1860-61, that endowed the postal service with "one of the finest chapters in American history."

Groundwork of the American postal system, as well as many improvements made in it during the colonial period, is credited to Benjamin Franklin. Thus the postal service and mutual insurance have common ancestry, for Franklin was a founding father of mutual insurance in America in 1752. He served in the American colonial postal service between 1737 and 1774 and on July 26, 1775, was the first appointee of the Continental Congress for postmaster general.

Before leaving the post the following year for his role as ambassador to France, Franklin visited every American post office of the day in the course of making vast improvements and changes. Even now he is credited by the department with having "imbued our service with the high sense of loyalty and dedication that is still its hallmark."

Despite the present-day status of the office, no postmaster general could aspire to visit the 36,000 U. S. post offices, as Franklin did in his day, nor travel the 1¾ million miles in the 31,377 rural routes. For one thing, the postmaster general portfolio is the only one in the President's cabinet which expires every four years. Cabinet rank was given to the office March 9, 1829.

Employees of the department number approximately a half million; cash transactions on a yearly basis, including 400 million money orders, total more than $23 billion. Recent fiscal-year revenues of the department have exceeded $3 billion. While this sum was deficient in covering needs and expenditures, the department can pride itself on a universal service to all Americans in providing an efficient and trustworthy interchange of messages at economical costs which everyone can afford to pay.

A historical initial milepost in our postal service was set up in 1672 with establishment of a monthly post between New York City and Boston over the Boston Post Road—now U. S. Route 1. Today the goal is an ultimate of next day delivery of letter mail between any two U. S. cities. ⊙

Prototype of future modern postal facilities, new automated post office, Providence, R. I.
Gilbane Building Company

OUR PROGRESS IN VOLUNTARY HEALTH CARE

128 million people protected;
$5.2 billion paid in benefits

NEARLY THREE-FOURTHS of all Americans have voluntarily protected themselves against rising medical costs by purchasing health care coverage. This statistic is a credit to the nation's insurance companies which have designed policies that directly meet the needs of families faced with sickness.

Health care plans in 1959 covered a record 128 million persons. Detailed in the chart on these pages is the number of persons covered for hospital, surgical, regular and major medical expense, and loss of income owing to disability. The chart also shows the amount of benefits paid under these programs. The $5.2 billion in benefits represents an average of $14 million per day paid to insured persons and their beneficiaries.

But the amazing progress of voluntary health insurance is not accurately reflected in any bare summary of current statistics. Within five years, the number of protected persons increased 26 per cent, yet total benefit payments rose 90.3 per cent because health insurance protection has become much broader.

From initial emphasis on accident coverage and loss of income reimbursement, health insurance later expanded to include coverage for the board and room expense of hospital confinement. It grew quickly to cover surgical expenses, and later coverage for medical expenses incurred during hospitalization was added to many policies. More recently major medical expense programs have been developed to cover any physician-prescribed treatment. During 1959 the number of persons protected against costly major medical expense rose 25.8 per cent, a dramatic indication that more people are getting broader coverage through modern voluntary health insurance plans. ⊙

Source: 14th Annual Survey (1959), Health Insurance Council, whose member associations are American Mutual Insurance Alliance, American Life Convention, Association of Casualty and Surety Companies, Association of Life Insurance Medical Directors, Health Insurance Association of America, International Claim Association, Life Insurance Association of America and Life Insurers Conference. These eight insurance associations represent companies that account for 90 per cent of the health insurance issued by the insurance business in the United States.

Type of protection
HOSPITAL EXPENSE
SURGICAL EXPENSE
REGULAR MEDICAL EXPENSE
MAJOR MEDICAL EXPENSE
LOSS OF INCOME PROTECTION

ADDITIONAL TYPES OF PROTECTION AGAINST INCOME LOSSES AND COSTS OF ILLNESS AND INJURY

Coverages	Number of people protected as of year end *(Includes dependents of insureds)*	Increase over previous year	Protected by insurance companies	Protected by other plans *(Including Blue Cross, Blue Shield, medical societies' and independent plans)*	Total benefits paid
Hospital daily room-and-board charges, drugs and medication	127,896,000	3.9%	75,457,000	52,439,000	$2,904,000,000
Cost of operations	116,944,000	4.9%	72,263,000	44,681,000	$1,433,000,000
Doctors' care other than surgery	82,615,000	9.6%	38,227,000	44,388,000	
All types of medical treatment prescribed by a physician, both in and out of the hospital	21,850,000	25.8%	21,850,000	(Persons protected by extended hospital and surgical benefits available through Blue Cross-Blue Shield and some medical societies' plans are included in basic plan figures above.)	(Benefits paid under major medical expense policies are distributed above between hospital expense and surgical-medical expense, according to payments made.)
Replaces wages and other income lost when head of family becomes disabled	43,169,000	3.1%	32,869,000	10,300,000	$ 838,000,000 (Does not include wage replacement benefits paid by sick leave programs, union-administered plans or employee mutual benefit associations.)

1. Personal accident policies in 1959 protected 6.5 million persons against loss of income and medical expenses associated with injury. Another 22 million policies protected Americans against special accident or "dread disease" expense.
2. Lump sum payments for accidental loss of life, limb, or sight were provided for nearly 20 million wage earners under group accidental death and dismemberment insurance taken out by employers.
3. Life insurance covered 127 million persons. Proceeds from these policies frequently pay for the insured's last illness and death. Some such policies also provide monthly cash benefits in the event of the policyholder's total and permanent disability.
4. Liability insurance covering liabilities arising from home or business accidents, automobile accidents and other causes of injury under policyholders' responsibility provided benefits toward hospital and medical expenses of injured persons and also income loss.
5. Workmen's compensation, covering approximately 43 million workers, furnished disabled employees with wage replacement and medical care benefits.
6. Compulsory cash sickness benefit programs in four states and for railroad workers under federal legislation gave protection against wage loss from nonoccupational disability for more than 11 million wage earners. States with such programs are Rhode Island, California, New Jersey and New York.
7. Federal agencies, including the military services and the Veterans' Administration, furnished complete or partial medical care for approximately 30 million persons.
8. Federal Social Security provided cash disability payments to "covered" persons over 50 who are permanently and totally disabled.
9. State and local government made provision for medical care for persons in government sanitariums, prisons and other public institutions.

die Probleme der Nassmahlung als Erfinder
re der schnellaufenden Steinmühle. Nur das
em verburgt bisher unerreichte Produktionssteigerung
MOREHOUSE-COWLES INC.
1160 San Fernando Road Los Angeles 65 California

→ Facade of Vienna's fair where a mutual-insured exhibit last fall gave visitors new impression of Chicago. World trade fairs stagger dates to permit buyers to visit many fairs each season.

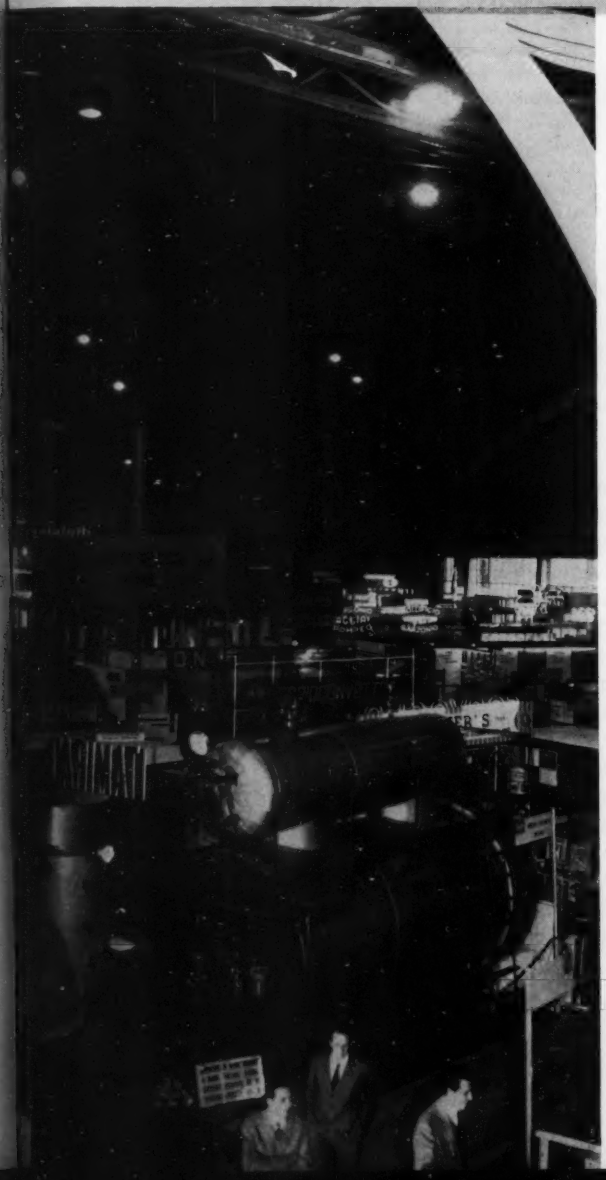
↑ High-speed milling equipment is displayed by California firm at East Germany's Leipzig technical fair. U.S. firms send experts with displays, do well in sales.

CROSSROADS

Heavy mechanical industrial equipment fills a huge pavilion at Milan, Italy, fair. European fairs, organized by industry and by nations, draw millions of buyers and visitors annually. Cash-and-carry, once the policy at fairs, changed to order writing due to mass production of commodities.

American firms will exhibit fully-insured goods at scores of international trade fairs this year.

OF WORLD TRADE



INTERNATIONAL TRADE FAIRS, which began as simple commodity markets for itinerant merchants during the Middle Ages, have become indispensable aids to 20th century commerce and important cold war battlefields.

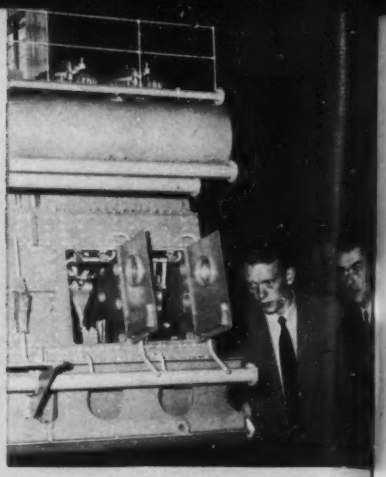
Billions of dollars in American goods have been promoted and sold at hundreds of trade fairs during the past five years. Exhibitions, even some behind the Iron Curtain, have been sponsored by U. S. firms with encouragement and positive assistance from the Department of Commerce which promotes a "trade, not aid" policy.

Consumer and capital goods of the U. S. and Soviet blocs regularly appear side-by-side at established trade fairs that are integral parts of the economies of Europe, the Near East and Asia. Our full participation to match communist countries is an important aspect of peaceful competition in the cold war. The Soviet Union and her satellites, which view trade fairs as tools for achieving Premier Khrushchev's threatened burial of capitalism, are represented at nearly every one of 200 international fairs held annually in three dozen nations.

But to American business firms and our economy, international fairs are more than another jousting place for communism and capitalism. U. S. firms, which export $16 billion worth of products annually, have adopted the hard sell

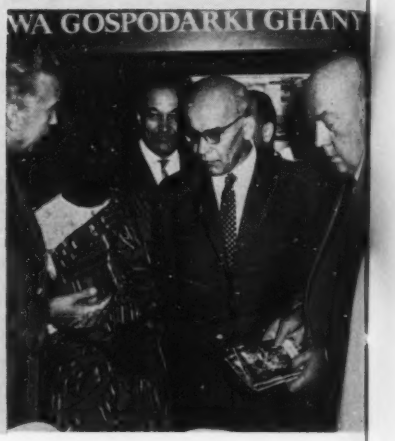
↑ Palace of Nations at Milan fair houses delegations of 35 nations whose flags fly here. Commercial rivalry between communism and the free world is apparent at fairs.

→ Young men carefully study cutaway of two-stroke marine Diesel engine at Swiss Industries Fair held at Basel each year. It is one of many trade fairs that do not welcome any foreign exhibits.



Aggressive trade policies of Soviet bloc countries are symbolized by Polish communist party boss W. Gomulka, center, visiting Poznan trade fair with other officials. ↓

← Office machines made in U.S.A. are shown at the Salon of Commercial Equipment held annually in Paris. It is one of the typical "vertical" fairs that show goods of a given industry. New ideas are a feature.



technique in world trade to meet foreign competition. Today's highly-organized and specialized trade fairs have become first-rate retail outlets for thousands of progressive American firms, many of which employ skilled export managers to market their goods effectively overseas.

In trade fair lingo there are vertical and horizontal sample fairs. Those fairs at which each nation gathers diverse exhibitors under a national pavilion or at a government-sponsored display are called horizontal, or running from country to country. Fairs confined to a single industry or trade are vertical fairs. Dr. Ludwig Erhard, West German minister of economics, states the case for vertical fairs this way: "The range of products is becoming so broad that a consolidated display no longer appears feasible. Anyone buying here (Cologne) finds everything belonging to a range of a certain kind. And I believe this idea will bear fruit."

Erhard was speaking of separate Cologne displays of men's wear, household goods, furniture and photo equipment. Similar vertical fairs are held in many places, including Italy where women's fashions and motor vehicles get special attention, and Paris where vertical fairs are held by the women's apparel industries.

But horizontal fairs are still popular with the public. Many member-fairs of the Union of International Fairs are organized on the national basis. To meet the challenge of these hori-

zontal fairs, permanent U. S. pavilions have been erected at several fairgrounds.

Nearly all of 640,000 visitors at the Vienna Autumn Trade Fair last September filed through the permanent U. S. pavilion and viewed an exhibit sponsored by the Chicago Association of Commerce and Industry. Attractively presented were samples of products from 38 Chicago area firms and gigantic scale models of the city's new landmarks: McCormick Place, the Inland Steel building, Dresden nuclear power station and the central business district.

Models Build Chicago's Image in Vienna

Models and manufactured items worth $100,000 were sent to Vienna as a bit of "image-building for Chicago and the Chicago area," in the words of an association official. Ocean marine specialists of the Kemper Insurance Group were called in to underwrite the risks involved in sending the costly models and samples to Europe. Models, in fact, were valued more highly than the manufactured samples of the exhibiting firms. A special casing for the Inland Steel building replica cost $5,000.

Kemper Insurance studied the project and designed a policy that covered fortuitous losses while the exhibit was in due course of transit from an assembly point, by train or rail to dockside, by boat through the St. Lawrence Seaway and across the Atlantic to Rotterdam and then by rail to a Vienna warehouse where the Vienna fair's forwarding agent took over. When the fair concluded, the exhibit was packed and shipped back, again under the protective coverage of the Kemper ocean marine policy.

During the fair the exhibit was insured for liability and damage under special policies written by the appointed insurance agent of the fair, a practice common to virtually all such trade exhibitions throughout the world. Most fairs have prepared detailed explanations in English of regulations for exhibitors, including the availability and requirements for insurance. The Office of International Trade Fairs of the U. S. Department of Commerce makes this information available to potential participants in fairs open to American products.

Wherever firms go to gain sales at trade fairs they have need for protective insurance, even beyond that required by fair authorities. Ocean marine is a basic coverage to protect the value of millions of dollars worth of samples sent overseas. But other coverages are also involved.

One of these is workmen's compensation because skilled American workers often accompany complicated equipment to demonstrate it to fair visitors. In such cases the touring employee may be covered by conventional workmen's compensation policies with extra-territorial provisions. Policies written under some state statutes, however, do not provide for overseas coverages, and special endorsements would be necessary to protect the employer. Insurance men also warn that overseas assignments are usually deemed 24-hour jobs. Any mishap, on or off duty, would be compensable. Workmen's compensation coverages for demonstrators, models, interpreters or others hired from the local labor force are usually governed by laws of the nation in which the fair is held.

Another coverage exhibitors may seek is contingent liability to meet claims that go beyond "all risks" liability insurance sold by officially-designated agents. Both workmen's compensation and liability insurance are special problems for exhibitors who cross the Iron Curtain to fairs as those in Poznan in Poland, Budapest in Hungary, Leipzig in East Germany or Plovdiv in Bulgaria. Soviet satellites and other nations with nationalized insurance set rigid coverage requirements for exhibitors. They complicate matters by imposing intricate rules governing on-the-job safety and employer-employee obligations.

Even Uncle Sam Now Insures Fair Exhibits

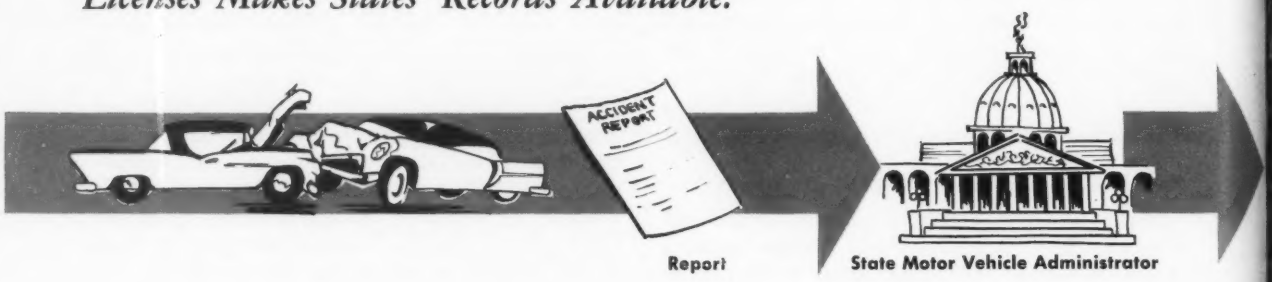
The cautious exhibitor and his insurance agent go over these aspects of fair participation carefully before official application for space is made. Fortunately they may get help from the insurance department of the Bureau of Foreign Commerce. The government does much to assist business and industrial firms who wish to exhibit, and it does not neglect the insurance considerations. The Department of Commerce itself took out a comprehensive liability policy on 75 exhibits it sponsored during 1958.

Considerable risks involved in exhibiting goods at international trade fairs are shown by the $221 million valuation placed on wares displayed at 13 official U. S. expositions last year. Independent displays increased this valuation at least tenfold.

But American business, with the help of insurance, is willing to hazard the risks to win substantial economic and political stakes at these crossroads of world trade. ⊙

ROUNDUP TIME ON RENEGADE DRIVERS

New National Register of Revoked Operators' Licenses Makes States' Records Available.



FEDERAL AND STATE officials are moving from two directions to identify and punish irresponsible drivers who wreak death and damage in their interstate escapades. If these efforts are successful, as they promise to be, thousands of bad drivers will be prevented from being licensed in one state after losing driving privileges in another.

Severity of the problem of disqualified drivers crossing state lines was pointed out by acting Secretary of Commerce Lewis L. Strauss in his 1959 letter to Congress on "The Federal Role in Highway Safety":

"The number of driver licenses currently in revoked status is estimated at 1 million, or more than one per cent of all drivers. As a class, these drivers are a poorer than average risk. Most states do not issue driver licenses to persons known to have had their license revoked in another state, but well over half the states do not check all applicants in this respect, and some have difficulty obtaining adequate cooperation from other states even when it is requested."

Strauss proposed establishment of a federal register of revoked operators' licenses using electronic data processing equipment to keep tabs on 250,000 drivers who lose their licenses each year. Congress acted on his suggestion in July of last year when it passed legislation creating a register of those whose licenses are revoked for driving while intoxicated or for conviction of a violation involving a fatality.

The states' participation in the program is voluntary. One advantage to them would be a central file through which state motor vehicle administrators could readily verify information furnished by applicants for drivers' licenses. Private agencies, including insurance companies, are prohibited from having access to the rogues' gallery of bad drivers.

Nevertheless there will be immediate benefits for insurers and the insuring public when the new driver register starts operating in July. Primary targets of the federal program are drinking drivers who are responsible for an estimated 15,000 highway deaths and 800,000 injuries each year. Of 456,538 mandatory withdrawals of driving privileges by all states in 1959, more than half (232,228) were for driving while under the influence of liquor. Direct cost of drinking drivers to those who buy auto insurance was recently put at $2 million a year.

To ground bad drivers who jump state lines to get re-licensed, the Department of Commerce has enlisted Wendell G. Eames, a 42-year-old

Ex-FBI records management officer Wendell G. Eames will direct Herculean chore of keeping up-to-date list of bad drivers. A native of Idaho, he is records and management specialist who supervised maintenance of FBI's 47 million master cards in criminal, security and administrative files. As special agent and records management officer for the FBI for 18 years, Eames gained experience that will now be used to ban bad drivers throughout the nation. Now a one-man pilot agency, the new register will be staffed this year.

National register

Driver information for state officials

Names of drivers whose licenses are revoked for driving while drunk or for causing a fatal accident will become available to licensing authorities in all states through the new national register of revoked operators' permits. Revocations now listed only in the drivers' home states will be part of huge electronic data system in Washington's Matomic Building, home of Bureau of Public Roads driver register.

former FBI records management officer. Already at work on preliminary arrangements for the driver register, Eames hopes to get an appropriation at the beginning of the next fiscal year to hire a competent staff. In setting up the federal register, Eames has had the experienced counsel of the American Association of Motor Vehicle Administrators, an association of state licensing authorities.

Administrators in seven states (Arizona, Delaware, North Carolina, North Dakota, Kentucky, Maryland and New Jersey) and the District of Columbia have already offered to participate in the register, and no state has vetoed the idea.

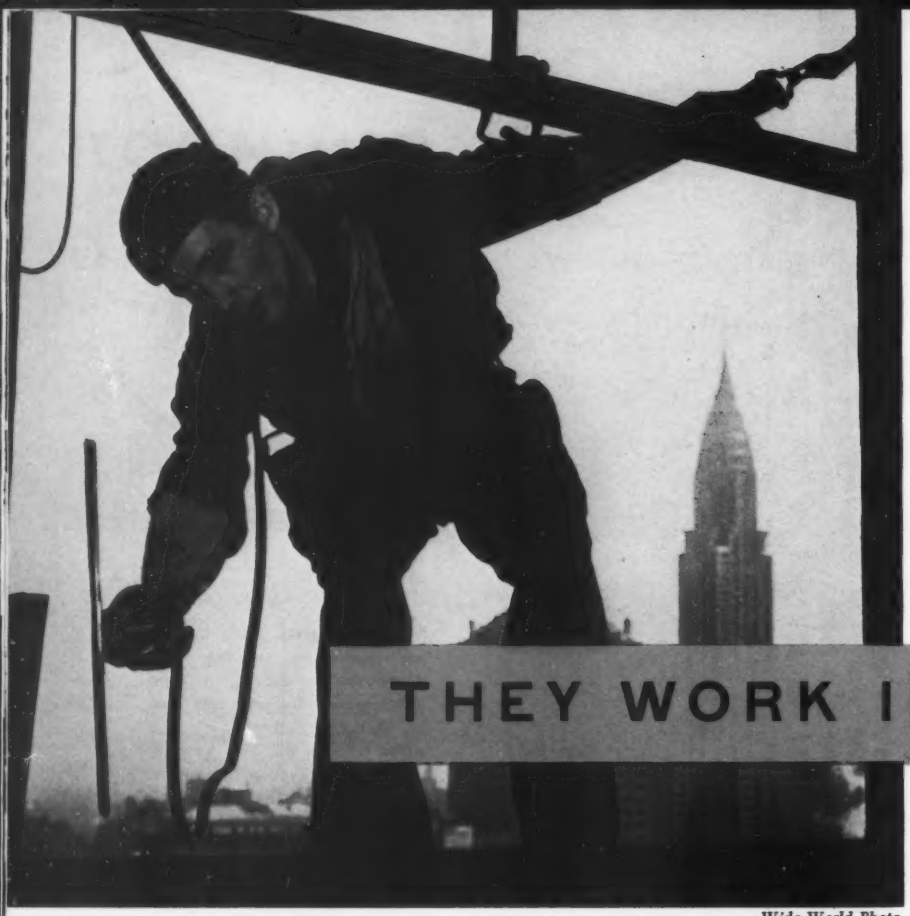
State administrators, themselves, have been considering a driver license compact program promoted by AAMVA and the Council of State Governments. Under such interstate compacts, member states bind themselves to exchange information not only about license revocations for drinking drivers and those involved in fatal accidents, but also about serious violations by drivers from other member states. Those who lose their licenses for failure to meet financial responsibility statutes would also be blacklisted.

Although no state or group of states has yet adopted compact legislation, it has been endorsed by the Western Governors' Conference and is now under study in western states.

Driver license compacts may be adapted to enforce the point system of driver control advocated by the nation's auto insurers in "A Program for Responsibility on Our Highways." Violations in any member state would boost a driver's point total recorded in his home state.

Also included in the proposed compact is the "one-license plan" under which a driver is entitled to only one license which must be surrendered if he applies for another in a different state.

Whether by federal action or interstate compacts, the records of drinking and reckless drivers will soon blacklist them throughout the nation. When that time comes the remainder of our 84 million licensed drivers will take to the roads with greater peace of mind. ⊙



← Window washer William Berry puts finishing touches on window high above New York City. Strong, well-fastened safety belt is his life line. Even squeegee is ensured against falling by leather strap.

→ With Rockefeller Center Plaza some 400 feet below, Peter Lorge takes time out to warm his ears from icy winds howling across lofty perch. Sixteen-building Center has 24,291 windows, each cleaned every month.

THEY WORK IN SPACE

Wide World Photo

Professional window washers, inured to heights, are fully insurance-protected.

WHEN 69-YEAR-OLD John Ramoska, a Chicago window cleaner, was rescued from a sixth-floor ledge where he had been dangling by one strap of his safety belt, he calmly observed:

"I'll have to be more careful. I'm getting too old for such things."

It wasn't Ramoska's equipment that was at fault. His safety belt was in good shape and the window hooks were firmly mounted. This near tragedy, like the vast majority of window-cleaning mishaps, was the result of human error. Ramoska admitted that he had not fastened his belt properly to the window anchors.

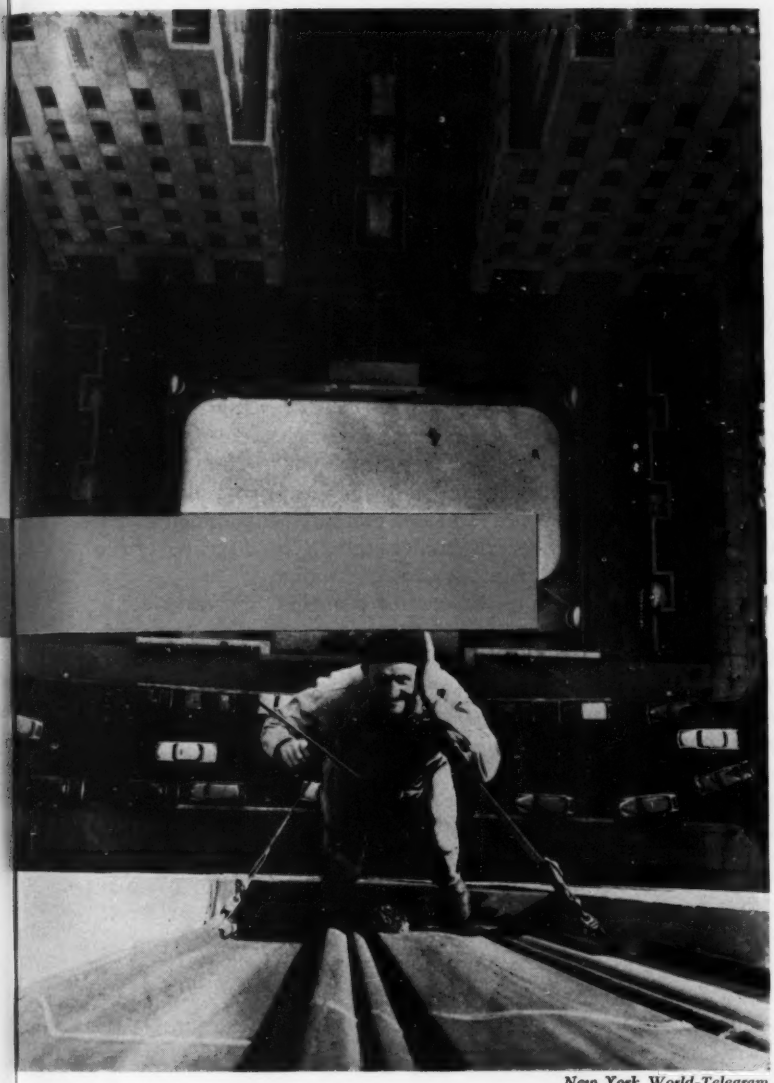
Although the number of accidents involving window cleaners has been greatly lessened through constant upgrading of equipment and maintenance, the occupation still accounted for too large a proportion of the 13,800 total work deaths which occurred in 1959.

Progress, however, is being made. Proof of this is reflected in the insurance rates for window cleaners. In New York, for instance, the occupational insurance rate in 1935 was nearly five times the cost of what it is today. Window washing firms, before consummating contracts with their clients, must furnish certificates of insurance showing that they are adequately protected by public liability, property damages and workmen's compensation insurance. These coverages have become more readily available to them in the past few years.

To pedestrians on the streets far below, win-

Wide World Photo

When there's no ledge to climb out on, an electrically driven telescope platform is often used. At the United Nations building this system is employed to wash huge picture windows surrounding lower floors.



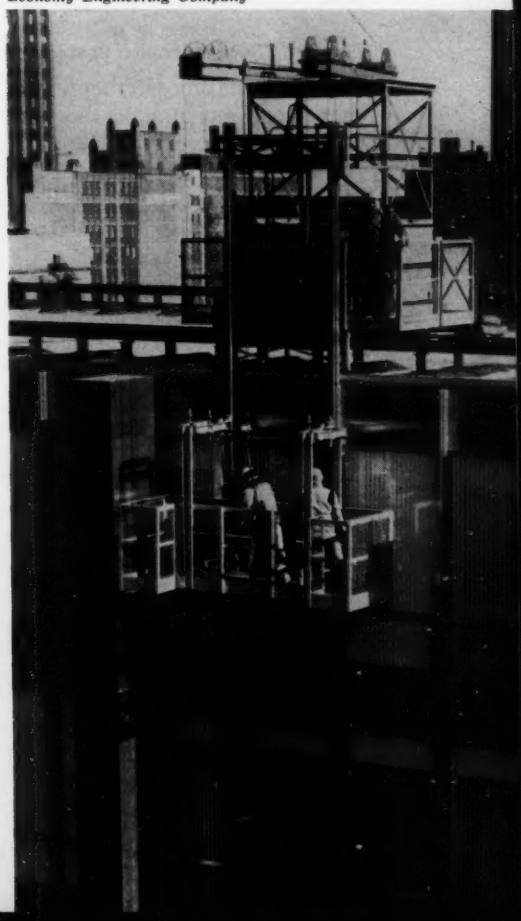
New York World-Telegram

Daily inspection of safety belts, ladders and other equipment is a must among Rockefeller Center window cleaners. If a belt shows the slightest sign of wear, it is immediately replaced. This practice has paid off in their safety record. ↓ Most serious injury was caused by splinter from a ladder.

Wide World Photo

Permanent window frames in today's modern buildings brought need for new methods in window-cleaning. Men ride basket-type elevators suspended by four heavy cables and operated by machine riding on roof tracks.

Economy Engineering Company



dow washers appear to be in an extremely perilous position. Not so, say these strap hangers. One explains his task as being "about twice as safe as a cab driver's." A window washing contractor, after polishing a 40-story row of windows, said:

"Either you're afraid of height or you're not. Lots of guys want to get into this business. They get out on the ledge once, and you never see them again." (By that, he means they quit.)

At Rockefeller Center in New York City, a crew of 23 men safely cleans 24,291 windows every month. A supervisor each morning conducts an inspection of belts, ladders and other equipment. He also checks weather conditions. Crews are "grounded" if wind is excessive or if ice has gathered on window sills. The only accidents on record at the Center have been to men hurt with splinters from wooden ladders.

New York's 48-story Time-Life Building, which has 7,000 sealed windows, has five-man crews riding two powered platforms up and down the building's facade. A roof car, with outriggers from which the platforms are suspended on dual cables, travels around the roof on tracks. An elaborate system of interlocks and timing devices controls operation and assures safety.

Careful Check of Belts Protects Workers

A ritual that most window cleaners go through each work morning is the careful scrutiny of their safety belts. Most of the men prefer webbed belts. Wear is easier to detect on a web than on a leather belt, which can appear perfectly strong on the outside but be badly deteriorated beneath the surface.

Periodic checks are also made of window anchors. Safety inspectors for the National Safety Council have found masonry-type anchors that could be removed from frames by merely tugging at them with their fingers. In cases such as this, the best safety belt in the world would be nothing more than a silent companion to its falling owner.

Anchors were formerly made mostly from cast bronze which would occasionally break. Today most of them are of forged metal. American Standards Association, Incorporated, with the cooperation of insurance companies and representatives of other interested groups, recently approved a safety code for window washers. It recommends that metals used in the manufacture of anchors and anchor fittings should have an ultimate tensile strength of not less than 55,000 pounds per square inch.

With all of these safety requirements fulfilled, there will still be window washers such as a New Yorker nicknamed "Take-a-Chance Charlie." Charlie received a suspended prison sentence of 30 days recently after a judge witnessed him washing an outside courtroom window without a safety belt.

Ledge-Hoppers Boost Insurance Premiums

Another example of recklessness practiced by a few window cleaners is the crossing from window to window along the outside ledge. This safety violation is a chief cause of most accidents and is very often a fatal short cut. Such needless bravado also explains why a good many insurance companies refuse to offer coverage for this rapidly growing industry.

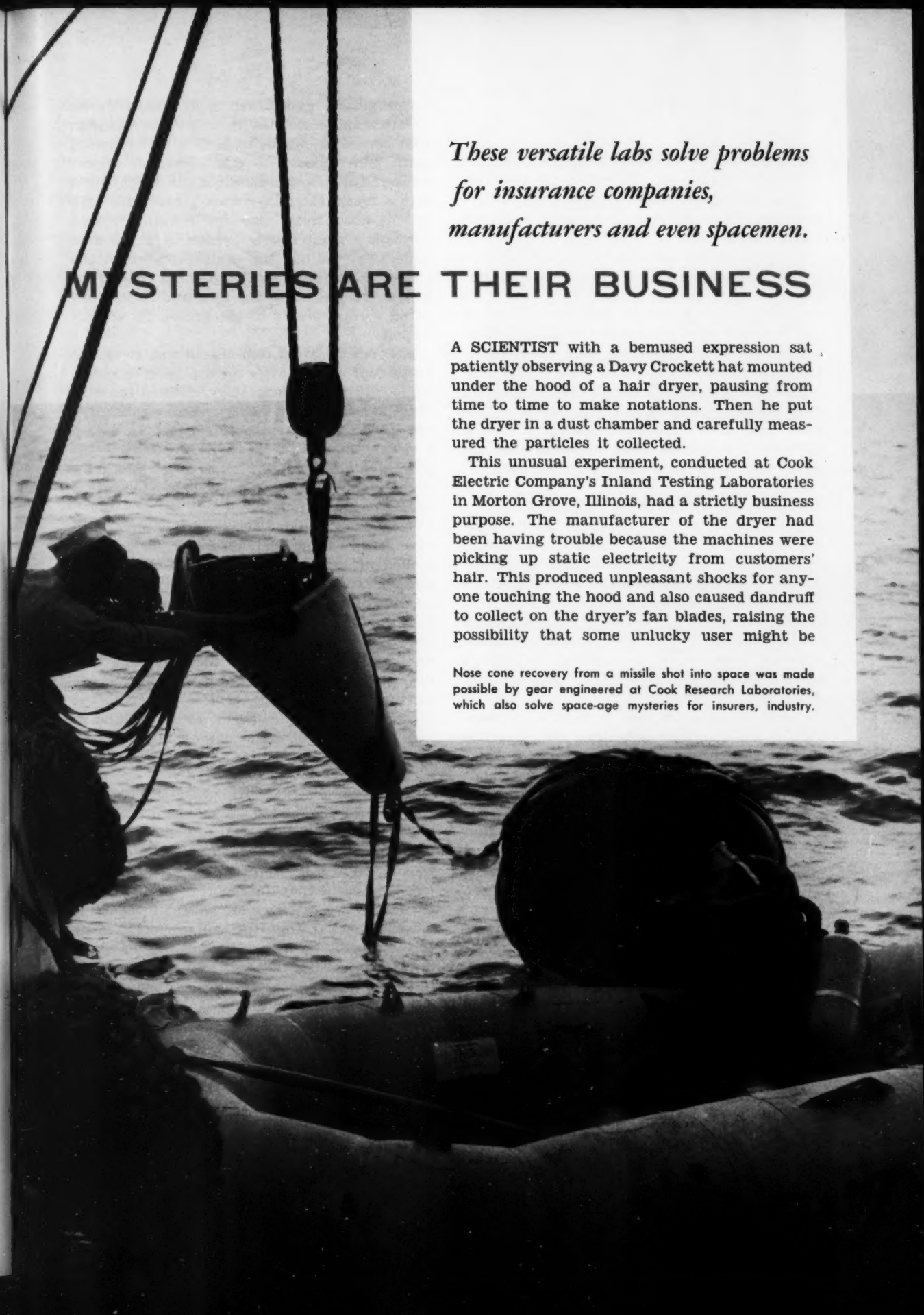
An underwriter for a mutual casualty company feels that the greatest problem the window-cleaning industry must overcome is the hiring of a better class of personnel. He feels, as do many underwriters, that too many of the men are physically unfit and that more rigorous physical examinations should be required. This is especially important in areas where work is done on multi-storied buildings.

In addition to growing taller, modern-day buildings are using glass in far greater quantities. Glass-sheathed buildings have made it necessary to develop new window-cleaning procedures, for most such buildings have fixed window sashes affording window cleaners no point of exit and entry. Therefore, more work is being done on scaffolds or outside elevator platforms. At the United Nations building, 45-foot-high picture windows are cleaned by workmen aboard an electrically driven telescope ladder.

An argument against the increased use of platforms was made to the JOURNAL by the president of a safety equipment company.

"Men have a greater degree of apathy while working on a stage (platform). When they work on conventional buildings with window anchors they're more careful. On scaffolds, they too often have the urge to step back and admire their work."

Stepping back for such admiring glances is one luxury window washers can't afford. At least not more than once. ⊙



These versatile labs solve problems for insurance companies, manufacturers and even spacemen.

MYSTERIES ARE THEIR BUSINESS

A SCIENTIST with a bemused expression sat patiently observing a Davy Crockett hat mounted under the hood of a hair dryer, pausing from time to time to make notations. Then he put the dryer in a dust chamber and carefully measured the particles it collected.

This unusual experiment, conducted at Cook Electric Company's Inland Testing Laboratories in Morton Grove, Illinois, had a strictly business purpose. The manufacturer of the dryer had been having trouble because the machines were picking up static electricity from customers' hair. This produced unpleasant shocks for anyone touching the hood and also caused dandruff to collect on the dryer's fan blades, raising the possibility that some unlucky user might be

Nose cone recovery from a missile shot into space was made possible by gear engineered at Cook Research Laboratories, which also solve space-age mysteries for insurers, industry.

deluged with the stuff and be angry enough to sue. Both the manufacturer and its insurance company breathed easier when the laboratory's research staff came up with a way to dispel the static charge.

On other recent assignments, Cook's research and testing laboratories found out for an insurance company how an employee of one of its policyholders accidentally electrocuted himself, ran a series of experiments for the Quartermaster Corps on preserving foods with radiation, and designed a complete recovery package for the Army's Jupiter missile. All the military missile nose cones recovered from space to date have used Cook's ingenious system, including the ones that carried space monkeys Able and Baker and space mice Amy, Moe and Sally.

Insurance Using Research in Many Ways

These diverse projects illustrate the flourishing success of the nation's research laboratories in solving modern mysteries for insurance companies, industrial clients and the U. S. government. Defense contracts still account for a large portion of the work at Morton Grove, although the big upsurge in research expenditures nationally has come largely from private industry's scramble to find and develop new products and processes.

Insurance research also is on the increase, both in the insurance industry's own facilities and at independent laboratories such as Pittsburgh's Mellon Institute and Chicago's Armour Research Foundation. The latter, for example, has just been awarded a contract by the Federation of Mutual Fire Insurance Companies to find out whether welding torches can be redesigned to eliminate the spewing sparks that have constituted a fire hazard ever since welding was first used.

Insurance-supported facilities such as Underwriters' Laboratories and the National Industrial Hygiene Foundation conduct basic research and product tests to ferret out the causes of fires, explosions, accidents and occupational diseases.

In addition to research of this type aimed at preventing insurance losses, claims men often call on laboratory staffs and facilities to do a job of scientific sleuthing after a loss has occurred and a claim has been filed.

One notable case solved by Chicago's Walter C. McCrone Associates involved an explosion that caused $20,000 damage to a fat-rendering plant and forced it to close down for several weeks. The plant discharged its by-products into a creek, catching excess grease in a trap on the downstream side and running it back through a giant cooker heated by a gas-fired boiler. On the day the explosion wrecked the cooker, employees noticed a peculiar odor in the grease removed from the trap and fortunately saved a small bottle of the grease for examination.

McCrone's Marvin Salzenstein was given the bottle four months after the explosion occurred. He took it into the laboratory, distilled the contents to isolate the peculiar-smelling substance, and used an infrared spectrometer to obtain a visual "fingerprint" of it. He then asked employees at the rendering plant to let him know if the smell recurred, since no indication of its source could be found.

Seven months later he received a phone call saying the smell had returned. Salzenstein rushed out to the plant and started taking samples, following his nose upstream to a petroleum product plant where flammable oils were being dumped into the creek. Spectroscopic studies showed it to be the same material the employees had collected the day of the explosion, and flash-point tests proved that it was an explosive mixture. On the basis of this evidence, the insurer who had paid the fat-rendering plant's loss decided to file claim against the oil company for reimbursement.

Claim Settlements Expedited by Research

Insurance companies see several advantages in calling in an independent laboratory. One is that the lab has the equipment and the scientifically-trained personnel to do an exhaustive job. Another is that the report of an independent laboratory carries more weight in court, if it comes to that, than the same report filed by the insurer's own investigator. Researchers sometimes are asked to testify in support of their findings.

More often than not, however, an impartial report leads to a settlement of the insurance claim out of court. This does not mean that the insurance companies always come out on top. In one recent case, an insurer asked Inland Testing Laboratories to check a lawn mower that had chopped off a little boy's foot, in the

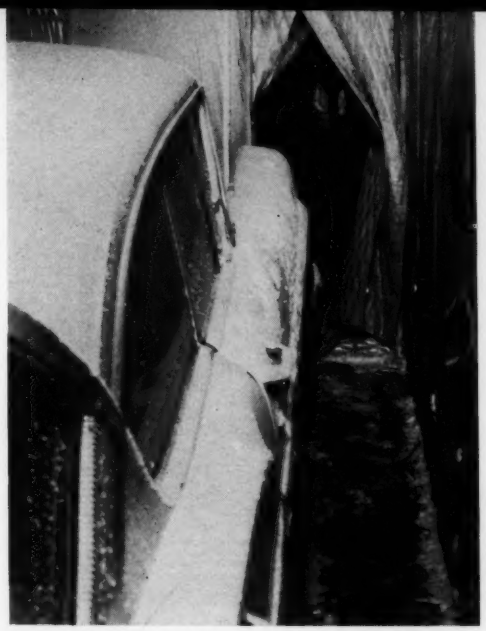
belief that the mower was defectively made. After exhaustive tests, the researchers reported they could find nothing wrong with the machine. Such findings also are useful, enabling the insurer to settle the claim promptly and without involving the mower manufacturer.

Insurers representing gas companies, railroads, transit authorities and other businesses vulnerable to lawsuits also may hire independent research labs to investigate accidents that could involve them, even before a claim is filed.

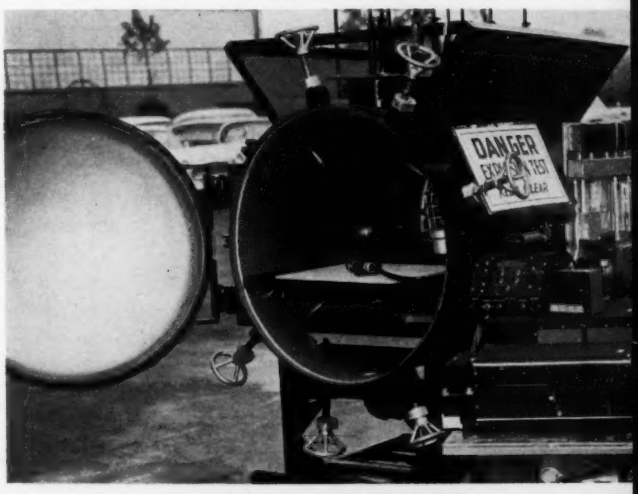
"We've learned from bitter experience that we're likely to be sued whenever there is the remotest possibility that gas might have caused a fire or explosion," explained one gas company official. He added that a prompt, impartial investigation often heads off a claim by pinpointing the actual cause or by showing that someone else had been negligent.

One such instance involved two do-it-yourself addicts who decided to install a gas heater in the basement of a home. Although one of them was a fireman, neither had any experience in such work. They made the mistake of purging the new piping by letting the gas flow for 15 minutes, filling the basement with gas. Both men were badly burned and the home was demolished when they struck a match to ignite the pilot light. The gas company's insurer sent an independent research engineer to the scene the next day to file a complete report. By establishing the facts, the engineer protected the gas company from both a direct lawsuit and the possibility of a subrogation claim from the insurer of the home.

As the nation's technological development increases the complexity of our daily lives, it's elementary that insurers and policyholders alike are destined to give these scientific sleuths an array of mysteries that might baffle even Sherlock Holmes. ⊙



Cook's environmental chambers can create any temperature and humidity conditions for testing large items such as autos and earth-moving equipment as well as tiny transistors. Lab also has an imposing array of chemical, electronic and mechanical test equipment.

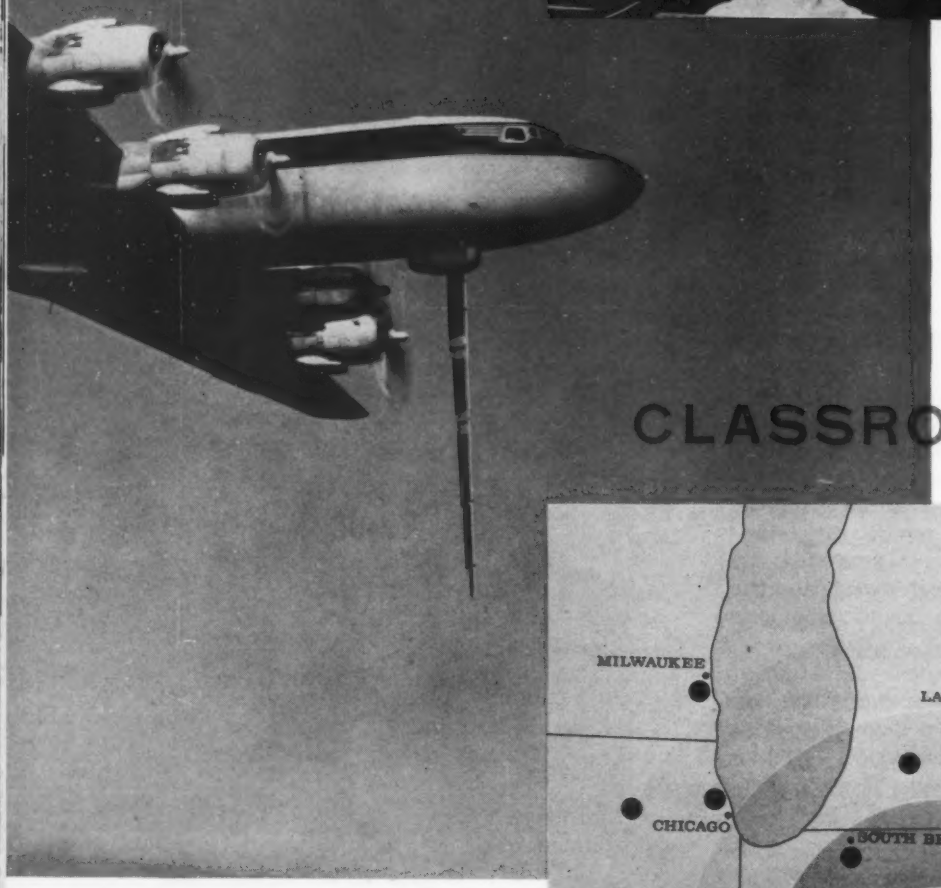


Explosion-proof chamber was designed to test electrical gear for current leaks that might set off explosions in a paint shop, airplane or ballistic missile. Vapor is created with gasoline.

Some of the nation's top-secret missile work takes place in the labs at right; insurance and industry research is conducted in the building beyond the round heliport at Cook Electric Company's giant research center.

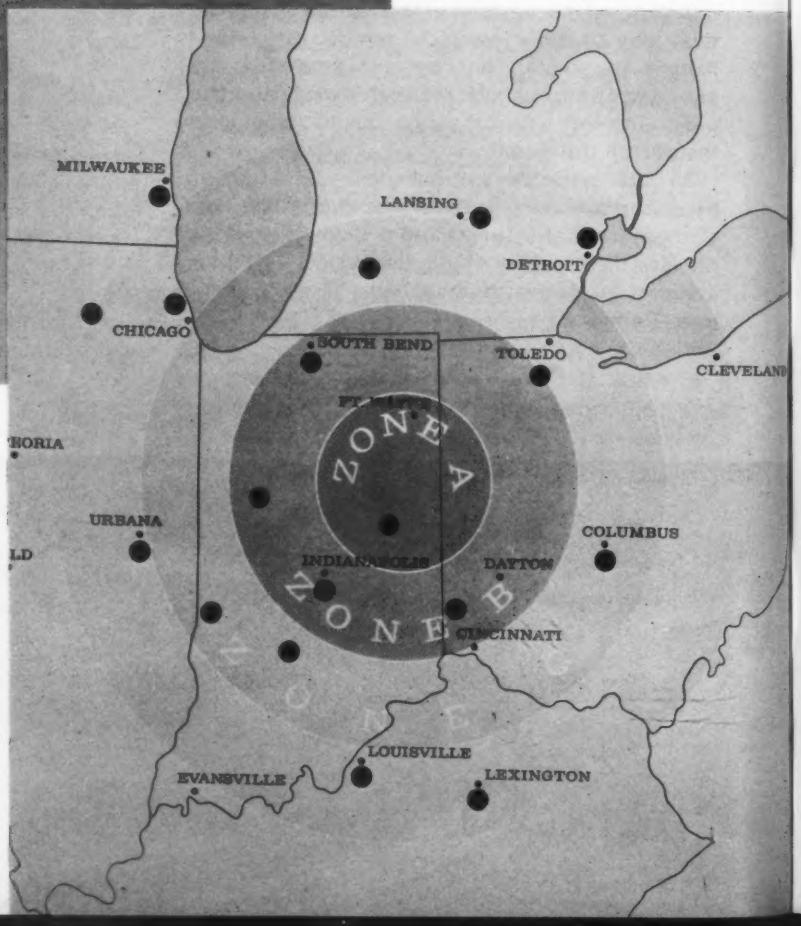
A sample lesson in elementary science by John W. Burns, one of the teachers in the new program, is monitored in the TV studios of Purdue University. Teachers were selected in talent hunt; courses go from first grades to college.

CLASSROOM IN THE



This DC6AB plane or its stand-by duplicate, each fitted with a 24-foot suspended antenna and $1 million worth of equipment fully insured, will telecast special courses for schools in midwestern states while flying over Indiana in a new educational venture.

Some 5 million students in 13,000 schools of the six states will be within the circle 300 to 400 miles wide covered by telecasts from the plane. Colleges and universities located at the 18 points indicated on the map are assisting in the airborne teaching.



This first flying schoolhouse will beam low-cost, high-quality education to six states.

HE CLOUDS

FIFTY-SEVEN YEARS AGO this past December, Wilbur and Orville Wright scored one of the greatest breakthroughs in the history of transportation with their first successful airplane flight at Kitty Hawk.

Twenty-four years later, in 1927, Walter S. Gifford, president of AT&T, presided over another spectacular breakthrough, this time in communications—the first successful demonstration of television in New York.

Now, 34 years beyond that, experimenting educators have put the latest refinements in both fields together to come up with what could well be the biggest breakthrough in education since the invention of the printing press.

Starting Monday, January 30, education enters the airborne-television age, with the launching of the Midwest Program on Airborne Television Instruction (MPATI). The $8 million experiment will beam courses ranging from first-grade art and music through college chemistry and Russian to the largest single classroom audience anywhere — potentially 5 million students in 13,000 schools in six states.

Principal ingredients in the experiment:

¶ Teachers, 32 in all, selected after a nationwide talent hunt for the very best.

¶ Videotape, to transmit their studio-recorded lessons from sky to schoolrooms without the teachers having to leave the ground.

¶ Two antenna-nosed airplanes, one flying a 10-mile "perpetual circle" 23,000 feet above Montpelier, Indiana, a second standing by on the ground.

¶ And televising equipment—a million dollars worth in each plane and, like the planes, fully insured against loss or damage.

Operating part-time this semester, full-time next school year, MPATI will attempt to demonstrate the feasibility of supplementing earth-bound education with classes from above the clouds.

The need for some such revolutionary relief measure is clear. In MPATI's 200-mile air radius, for example, one-third of the school systems are too small to provide a satisfactorily broad range of courses for their students. Many cannot afford the best teachers. Others, even with money, learn there just are not enough top-quality teachers to be found. Meanwhile, enrollments rise, and so do the costs of education.

MPATI, a council of educators financed by nearly $8 million in Ford Foundation and industry-donated funds, believes it can broaden and enrich the curricula of these schools with top-quality instruction—and do it at very small cost per student. Even if only 20 per cent of the students in the reception area participate, the cost would be only $2 per student per year.

The effectiveness and popularity of TV in education already have been demonstrated. In 1958-59 more than 600,000 students in 569 public school systems and 117 colleges in the U. S. received direct instruction in regular courses via TV with good results. But until now they received it via expensive closed-circuit systems or limited-radius local educational TV stations. An airborne transmitter can cover a much greater area, including small towns and rural areas not reached by ground-based stations.

The idea of an air-based television station was conceived 15 years ago by a Westinghouse Electric Corporation engineer, Charles E. Nobles. The company spent three years testing his "Stratovision" plan, proved it could be done. But it was not economically profitable, and the scheme lay dormant until several years ago, when another Westinghouse engineer, Reuben Lee, suggested it be applied to education.

And so MPATI, with its two Westinghouse-equipped planes flying out of Purdue University Airport, will begin its history-making, double-barreled broadcasting (on two channels), three hours a day four days a week. In September it

Heading the new Midwest Program on Airborne TV Instruction is John E. Ivey, Jr., president, with headquarters in Chicago. There are 32 teachers on the staff. Telecast on two channels, the program will be on for three hours a day four days a week. Eventually it could beam six different courses simultaneously, giving TV-equipped schools on the ground a choice of 72 separate half-hour classes a week. Educators believe this may be the advent of higher quality education for more pupils at low cost per pupil.

will step up its schedule to six hours a day, and eventually could beam six courses simultaneously, offering TV-equipped schools on the ground a choice of 72 separate half-hour classes a week.

Devising the equipment and working out the details of this unprecedented operation were extremely complex. And almost as big a job was drawing up an insurance program to protect the planesful of virtually irreplaceable apparatus. The responsibility fell to William R. Vance, manager of the aviation department of R. H. Gore Co., Chicago insurance brokerage, himself a pilot for 22 years and an aviation insurance man all his working life.

The main problems, Vance said, were these: First, the two planes, with their 24-foot hanging antennae and specially-fitted interiors, are unlike any other planes in existence. There has been no opportunity for exhaustive testing, so they had to be licensed as experimental aircraft and insured as such. Eventually, after the required number of flight hours, they may be reclassified and insured at a lower rate.

Second, it was almost impossible to place dollar values on the TV equipment. It was largely hand-built, with labor accounting for most of the cost. Westinghouse estimated that fixing up the first plane cost $5 million; the knowledge gained cut the cost of equipping subsequent models, of course, and so special million-dollar, marine-type policies were devised to cover the cost of replacing the precious cargoes.

Third, with only two planes involved, rather than a whole fleet, there isn't much spread of risk, a vital element in any insurance program. In fact, said Vance, in this new and untested venture the only factor that made insurance coverage feasible at all was that Purdue Aeronautics Corporation, which will operate the planes, has high standards for its pilots, planes and crews, and has had perfect loss-free experience throughout its 10 years in the flying business. Grounding the flying schoolhouse because of weather or other conditions would be its responsibility, although it is not expected that bad weather would interfere with the highly-developed televising equipment.

The massive insurance program finally worked out includes $5 million liability and $900,000 physical damage coverage on each of the two planes, $1 million on the equipment in each plane, plus standard workmen's compensation coverage for both flight and TV personnel and special fringe-benefit accident policies for the pilots.

This far-reaching insurance protection is only one of the many elements that had to be worked out before the pioneering MPATI program could get off the ground. Now that it has, the possibilities are almost unlimited. If the experimental year-and-a-half is successful, MPATI could become the prototype for similar projects throughout the U. S. and the world.

Experts say half a dozen transmitter-planes, strategically spotted, could enrich the education of 90 per cent of the U. S. school population. And it isn't too great a step from there to envision an end to illiteracy and a great new golden age of education in underdeveloped parts of the world, thanks to TV teachers in the sky. ⊙

Miss Judith Waller, of the MPATI staff, explains to two teachers how their lessons will be transmitted on video tape.

Talented MPATI teachers using the best of educational material are typified by Marlene Beigel, planning her arithmetic.

Operation of the planes will be handled by the Purdue Aeronautics Corporation, which has an exemplary loss-free record.

Commissioner Charles Manson is keeping up with major changes in the industry by stepping up Wisconsin's research program.

MANSON OF WISCONSIN

"FORWARD," the current national urge, bodes nothing new for Wisconsin. That is the official motto of our 30th state, which entered the Union May 29, 1848, the same year that gold was discovered in California. Ever since then the state has remained on the frontier of progress, notably in history, social science, architecture and insurance.

Insurance for workmen's compensation, in which benefits of more than $1 billion a year are now being paid to U. S. workers and their families, had its origin in a Wisconsin mutual company, following that state's passage of the first effective workmen's compensation law. Wisconsin also pioneered in making provision for the blind, for dependent children, old age and unemployment. For pre-eminence in history, social science and architecture, Wisconsin can cite native sons Frederick Jackson Turner (1861-1932), Thorstein Bundy Veblen (1857-1929) and Frank Lloyd Wright (1869-1959).

Now the nation's leading dairy state, Wisconsin made its early reputation in commerce and industry through wheat production and lumbering. Chief industrial products today are automobiles, machinery, furniture, paper, malt beverages and processed foods.

In scenic beauty and recreational facilities, Wisconsin has one of the richest heritages of all states, including 10,000 miles of trout streams and 8,500 lakes augmented now by 31 state parks, 7 state forests and about 1.5 million acres in national forest lands. For access to these facilities, the state has one of the nation's best systems of secondary roads fanning out from rail centers, 114 airports and 6 seaplane bases. The very name, Wisconsin, is from an Indian word meaning, "gathering of the waters," noted not alone for scenic beauty. The Wisconsin River is said to be the hardest working in the world, with more than 50 dams.

Likewise productive and beneficial for the state is the insurance industry, which yielded Wisconsin almost $9.5 million in taxes, licenses and fees during the fiscal year ended June 30, 1960. Commissioner Charles Manson reports 825 insurance companies licensed to do business in the state, of which 292 are Wisconsin corporations. Insurance is thus fulfilling the forward spirit; 34 new companies domiciled in other states were admitted to transact business in 1959 and 6 new Wisconsin companies were licensed; total premiums written amounted to $677 million, an increase of 8.6 per cent over the previous year.

Commissioner Manson, son of a Wausau pioneer, was appointed July 2, 1959, at which time he was operating the insurance agency established by his father. He attended Beloit College, was graduated from the University of Wisconsin School of Journalism in 1922 and worked on newspapers in Kansas City, Los Angeles and Honolulu before taking over the family agency upon the death of his brother. Among many civic and professional activities, he has been president of the Wisconsin Association of Insurance Agents and of the Wausau Insurance Board. ⊙

Wisconsin prides itself on its wildlife, dominated by the white-tailed deer. Sightseers, hunters and vacationers are favored by one of the best secondary road systems.

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